23.4 RENAL SUPPORT

DESCRIPTION

Acute kidney injury (AKI) in critical care is a complex, heterogenous clinical syndrome presenting with varying severities, trajectories, and outcomes.

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See section 7.1.4: Acute Kidney Injury, for further details.

Table 23.1: Staging/Severity of Acute Kidney Injury

Stage	Serum creatinine	Urine output
1	1.5-1.9 times baseline **OR** ≥26.5 µmol/l (≥ 0.3 mg/dl) increase	<0.5ml/kg/h for 6-12 hours
2	2.0-2.9 times baseline	<0.5ml/kg/h for ≥ 12 hours
3	3 times baseline **OR** Increase in serum creatinine to ≥353.6 µmol/l (≥ 4.0 mg/dl) **OR** Initiation of kidney replacement therapy **OR** In patients <18 years, decrease in eGFR to <35 ml/min per 1.73 m^2	<0.3ml/kg/h for ≥ 24 hours **OR** Anuria for ≥ 12 hours

Taken from: Kidney Disease: Improving Global Outcomes (KDIGO). Acute Kidney Injury (AKI). 2012 Kidney Disease: Improving Global Outcomes (KDIGO) Clinical Practice Guideline for Acute Kidney Injury (AKI). 2012. Available at: https://kdigo.org/guidelines/acute-kidney-injury/

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GENERAL MEASURES

In all patients at risk for, and with AKI:

» Avoid nephrotoxic agents (e.g. aminoglycosides; amphotericin B, NSAIDs).
  – Where medication cannot be avoided, dose appropriately with use of therapeutic drug monitoring where available.
» Dose-adjust medications for reduced GFR
» Ensure volume status is appropriate.
» Ensure optimal perfusion pressure.
» Consider functional haemodynamic monitoring.
» Monitor urine output (UO) and serum creatinine.
» Avoid hyperglycaemia.
» Consider alternatives to radiocontrast material.
» Search for reversible causes and treat.
» Consider invasive diagnostic workup.

Fluid therapy

» Use balanced salt solutions.
» For patients at high risk of AKI that also require imaging with iodine-based contrast media (e.g. eGFR <30ml/min/1.73m^2, renal transplant, large volume of contrast medium to be used, intra-arterial administration of

contrast medium), ensure adequate intravenous volume expansion with 0.9% sodium chloride solution if not already volume replete.

Nutrition in acute kidney injury

» Provide total energy intake of 20-30 kCal/kg/d in all AKI stages.
» Feeds may be given orally, enterally, or parenterally depending on gut functionality and integrity.
» Do not restrict protein intake with the goal of preventing or delaying Kidney Replacement Therapy (KRT).
» Consult a dietitian as necessary and refer to the National Department of Health Clinical Nutrition Guidelines

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CAUTION

The following drugs are NOT RECOMMENDED for the prevention of AKI:

» Diuretics
» Low dose dopamine
» N-acetyl cysteine in critically ill patients with hypotension or for prevention in post-surgical AKI.

The following class of drug is NOT RECOMMENDED for the treatment of AKI:

» Diuretics (except in the management of fluid overload).